Face Validity and Clinical Utility of the Activity Card Sort -United Kingdom

a Student as Co-Researcher project

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Introduction

- The World Health Organisation (WHO, 2012): 'everyone benefits from communities, workplaces and societies that encourage active and visible participation of older people' (p.10)

- **Participation**: 'engagement in work, play, or activities of daily living that are part of one's socio-cultural context and that are desired and / or necessary to one's well-being.'

  (Kielhofner, 2002, p. 115)

- Participation in required activities, alongside engagement in active recreational interests, is associated with:
  - lower levels of depression,
  - better cognition
  - higher health-related quality of life in older people

  (Kalldalen, Marcusson & Wressle, 2013)

Occupational therapy and participation

- Occupational therapists can make important contributions to both prevention and remediation services for older people through enabling participation in meaningful occupations (Clark et al., 2011)
- Further research is required to increase understanding of the factors that facilitate participation and evaluate occupational therapy interventions that are directed at increasing participation (Law, 2013)
- This is a particular issue for: older populations with stroke (Spitzer, Tse, Baum & Carey, 2011) and mental health problems (Bannigan & Laver-Fawcett, 2011)
- Reliable and valid measures of older people's activity participation are essential for such research
- The Activity Card Sort (ACS; Baum & Edwards, 2008) is recognised internationally as a useful self-report measure of participation for clinical practice and research (e.g., Eriksson, et al., 2011)

Activity Card Sort (ACS)

- Well established measure of activity engagement for older people (2nd edition, Baum and Edwards, 2008)
- Originally developed by Dr Carolyn Baum for use with people with dementia in the USA in early 1990s (Baum, 1993)
- Photograph cards for activities grouped in 4 categories:
  - Instrumental
  - Low Demand leisure
  - High Demand Leisure
  - Social

- 3 ACS versions: Recovery, Institutional and Community Living
- Each version uses the same 89 activity cards
- Different sorting categories of engagement and scoring methods

Uses of the ACS

- The Activity Card Sort (ACS) measures an individual's occupational performance
- Used to monitor changes in activity participation over time due to a chronic health condition, a stroke or aging
- Comparing premorbid engagement in activities with current activity participation (Baum, Perlmutter & Edwards, 2000; Hartman-Maeir, Soroker, Ring, Avni & Katz, 2007)
- Useful for initial assessment, goal setting and intervention planning or to monitor activity following onset of illness (Albert, Bear-Lehman & Burkhardt, 2009; Chan, Chung & Packer, 2006; Packer, Boshoff & DeJonge, 2008)
- Creating an occupational history

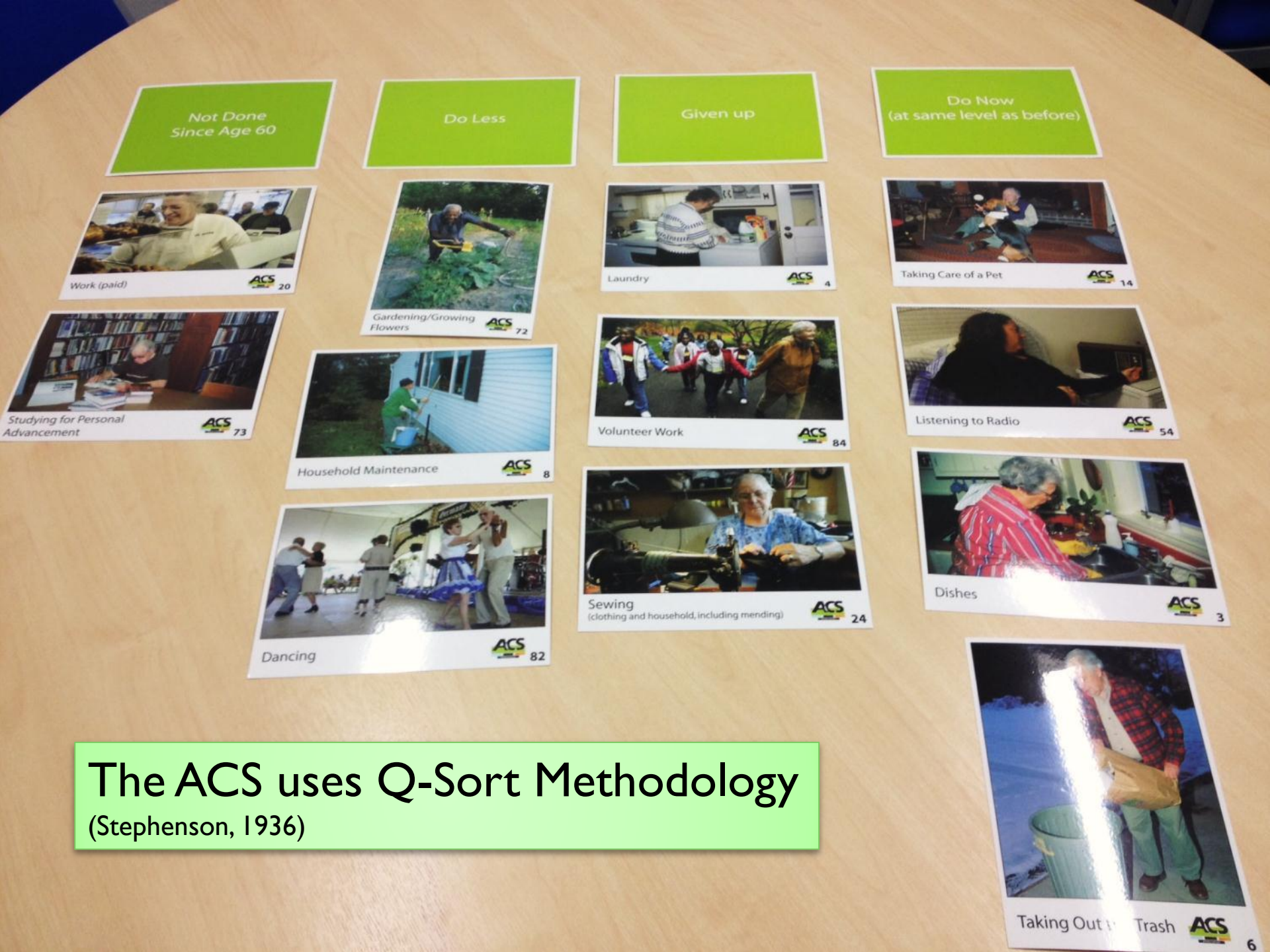
(Canadian Stroke Network – Stroke Engine Assess, n.d.)

Students as Co-Researchers

- 3rd year BHSc(Hons) Occupational Therapy students
- Collaborated in this study for their final year project
- Focus is on students and tutors collaborating in a research team
- Provides students with an experience of gaining ethical approval, participant recruitment and consent procedures, administering and scoring the ACS-UK, conducting a semi-structured interview, transcribing and data analysis.
- Pedagogic drivers = Research informed Teaching (RiT) and Enquiry Based Learning (EBL).
- Professional drivers = evidence based practice
- Level 3 module in our new curriculum 'Contributing to the Evidence Base'
- Assignment 5000 word written assignment in the format of a BJOT article

Background: Activity Card Sort (ACS)

- The Activity Card Sort (ACS; Baum & Edwards, 2008) is recognised internationally as a useful self-report measure of participation for clinical practice and research (e.g., Eriksson, et al., 2011)
- ACS-UK (Laver-Fawcett & Mallinson, 2013) has 91 Photograph cards for activities grouped in 4 categories:
  - Instrumental, Low Demand Leisure, High Demand Leisure, Social/Cultural
- 3 ACS-UK versions: Recovery, Institutional and Community Living (using the same 91 photo activity cards)
- Different sorting categories of participation levels used for each of the three versions



The ACS uses Q-Sort Methodology

(Stephenson, 1936)

Sorting categories for ACS-UK

Community-Living version (Form C)

Never Done	Not done in past year (optional)	Do More (score as do now)	Do Now (1)	Do Less (0.5)	Given Up (0)

Done Previously
Calculated after sort: Do More + Do Now + Do Less + Given Up

+ At the end participants are asked to "identify the five most important activities to you (they may be those you no longer do)"

Example – part of ACS-UK scoring form (HDL domain)

ACS-UK card	ACS-UK Activity	Never Done	Not done in past year	Do More	Do Now	Do Less	Given Up	Done Previously	Scores	Comments
	High Demand Leisure		Not sorted							
53	Going to the Beach					0.5		1		
54	Recreational Shopping					0.5		1		
55	Dancing						0	1		Used to go to tea dances with her husband
56	Swimming						0	1		
57	Indoor Bowling	X								
58	Outdoor Bowling	X								
59	Playing Golf	X								
60	Walking					0.5		1		
61	Hiking / Rambling	X								
62	Exercising					0.5		1		
63	Riding a Bicycle						0	1		
64	Going on Holiday / Travelling					0.5		1		
65	Attending a Hobby / Leisure Group			X	1			1		Joined a local tai chi club
66	Going to Gardens / Parks					0.5		1		Would like to go more
67	Fishing	X								But use to go with father as a child and watch him fishing
	Total High Demand Leisure Activities	5		1	1	3	3x 0= 0	10	Current	1 + 3 = 4 (CA)
									Previous	10 (PA)
									% Retained	4/10 = 0.4 x100 = 40% (RAS)

Objectives

- Determine the time required to administer and score the ACS-UK (duration - clinical utility)
- Explore the ease of use of the ACS-UK for the people administering the assessment - occupational therapy students considering their future practice (clinical utility)
- Explore the acceptability of the ACS-UK to community dwelling older people (face validity and clinical utility)
- Measure the ACS-UK Global Activity Retention Scores among community dwelling older people.

Ethical approval

- A pilot of the Activity Card Sort – United Kingdom [ACS-UK] with a sample of community dwelling, healthy older people (ACS-UK II study)
- The York St John University ethics committee approved both rounds of data collection for this study:
  - UG10-4Nov11-DS approved on 4.11.2011
  - UG4-1NOV12-ALF approved 1.11.2012

Method - interview

- Mixed methods approach (Creswell and Plano Clark, 2011)
- ACS-UK was administered, scores obtained for: Current Activity (CA), Previous Activity (PA) and Retained Activity (RA)
- Time taken to administer and score the ACS-UK (in seconds)
- A semi-structured interview was developed to explore aspects of face validity, content validity and clinical utility
- Open ended questions were used to allow participants to state opinions and explore ideas further
- Students carried out interviews in pairs for consistency
- Interviews were audio recorded and transcribed verb

Interview questions

1. What are your first impressions of the Activity Card Sort?
2. Did you find the assessment straightforward to carry out?
3. How easy were the instructions to follow, in relation to:
   - Categories make sense
   - Sorting the cards
   - Choosing 5 most important / favourite activities
4. What do you think the purpose of this assessment is?

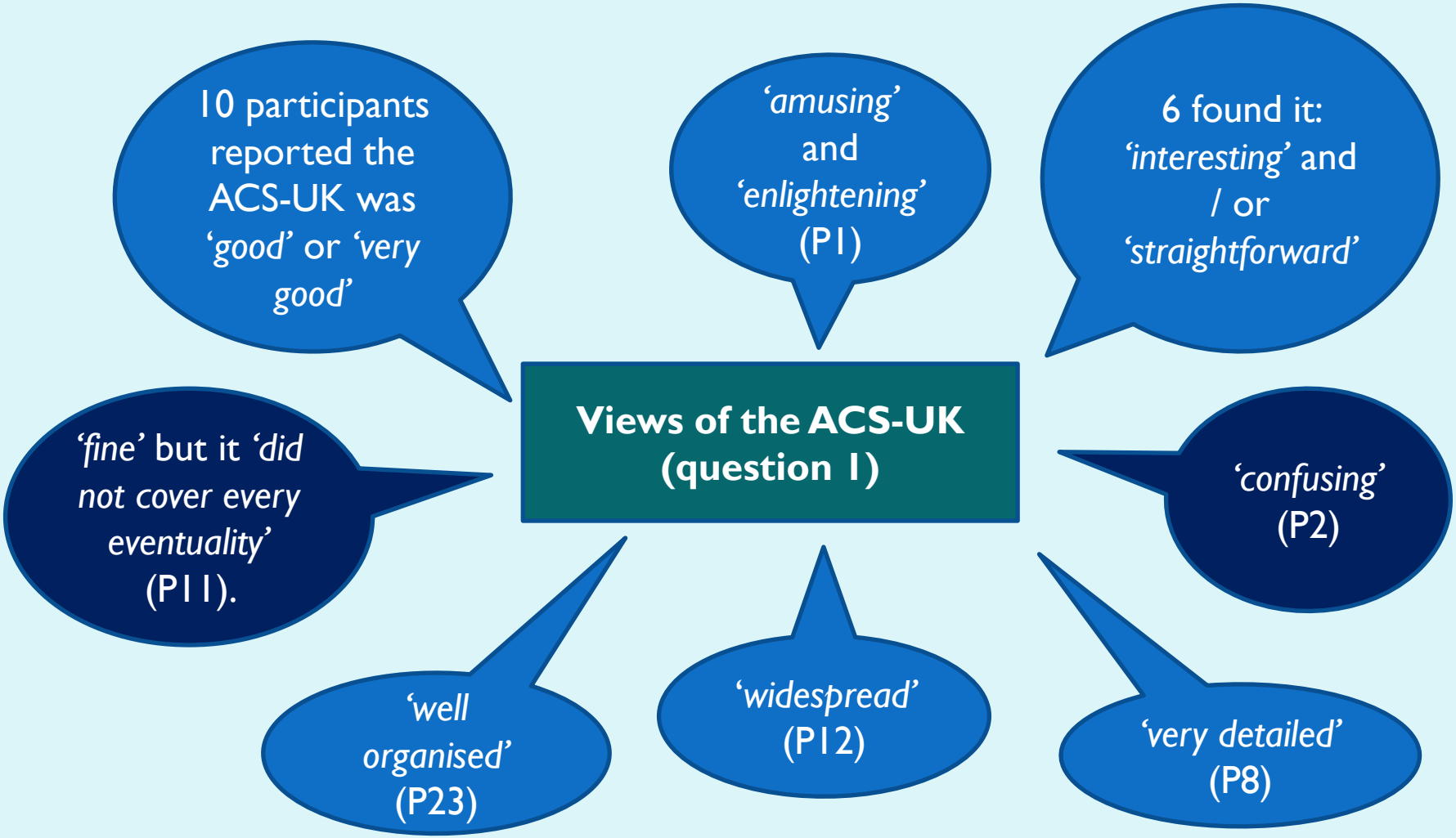
Interview questions (continued)

5. Do the photographs look like the activities they are representing?
6. Do the descriptions match the pictures on the cards?
7. Have we missed any activities that you know older people participate in?
8. What do you think about the time it took to complete the assessment?
9. Was there anything you didn't like about the assessment?
10. Is there any way we can improve the assessment?
11. Do you have any additional comments you would like to make?

Sample

- 27 White British participants (16 women; 11 men) aged 65 or over.
- Convenience Sample (recruited through local community centres, religious groups, coffee mornings, libraries and contacts known to the researchers)
- Community dwelling older adults (not living in a residential or nursing home)
- over the age of 65
- who could comprehend and communicate in English (the project did not have the resources for translation and the ACS-UK activity labels on cards are written in English)
- had capacity to provide informed consent (according to the Mental Capacity Act 2005 (English legislation)
- Exclusion criteria: people who were currently receiving secondary health care or social services
- Participants could be receiving check-ups/ routine care from their General Practitioner (e.g. seasonal flu jabs)

Qualitative Findings (n = 27)



Qualitative Findings (n =23)

Completing the ACS-UK (questions 2 and 3)

85% (n = 23) stated the ACS-UK was easy and straightforward to do

100% agreed the ACS-UK instructions were easy to follow

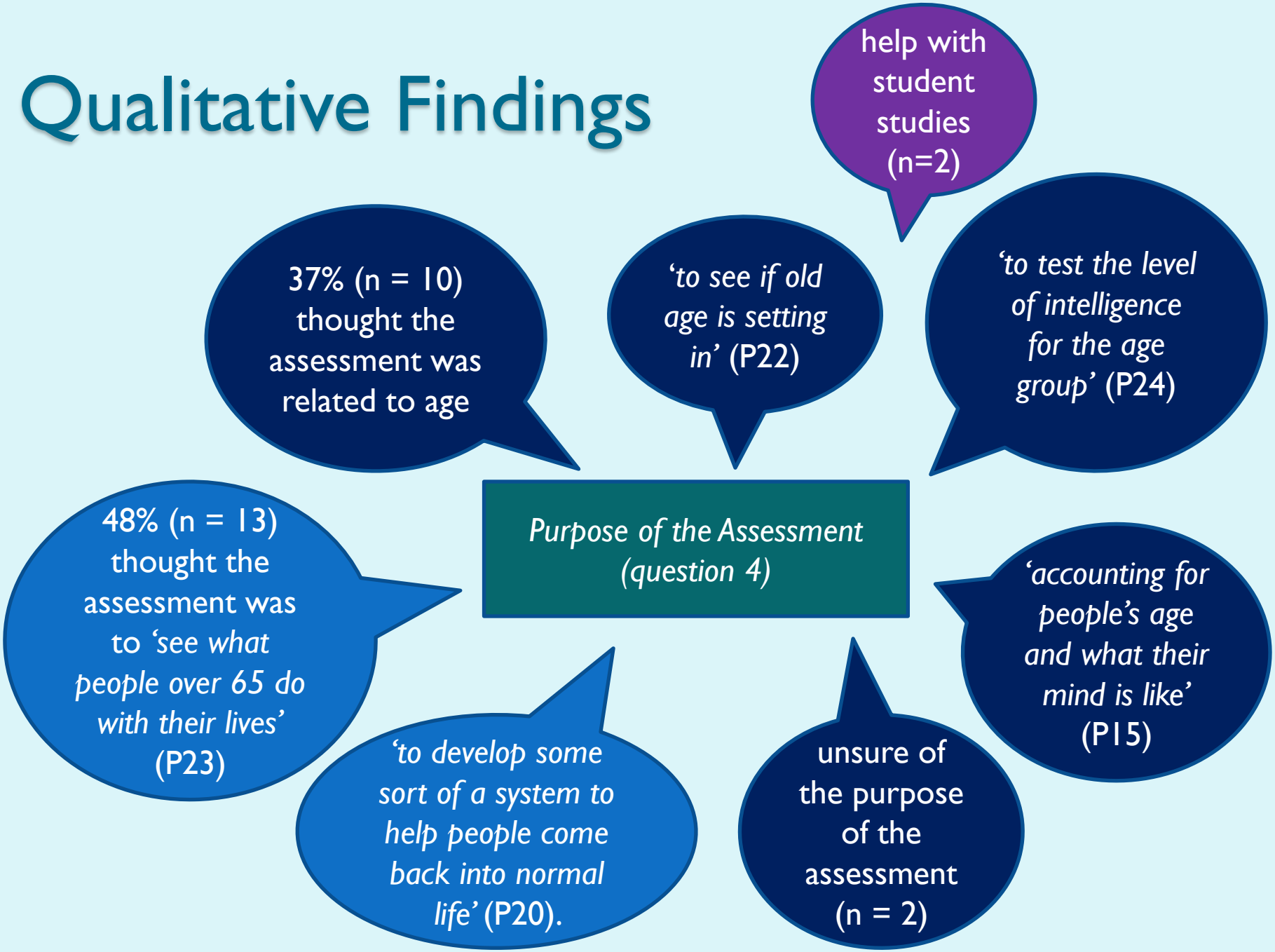
4 participants were unsure where certain cards should be placed

2 had difficulty sorting item 80 'being with your spouse or partner' (they were widowed)

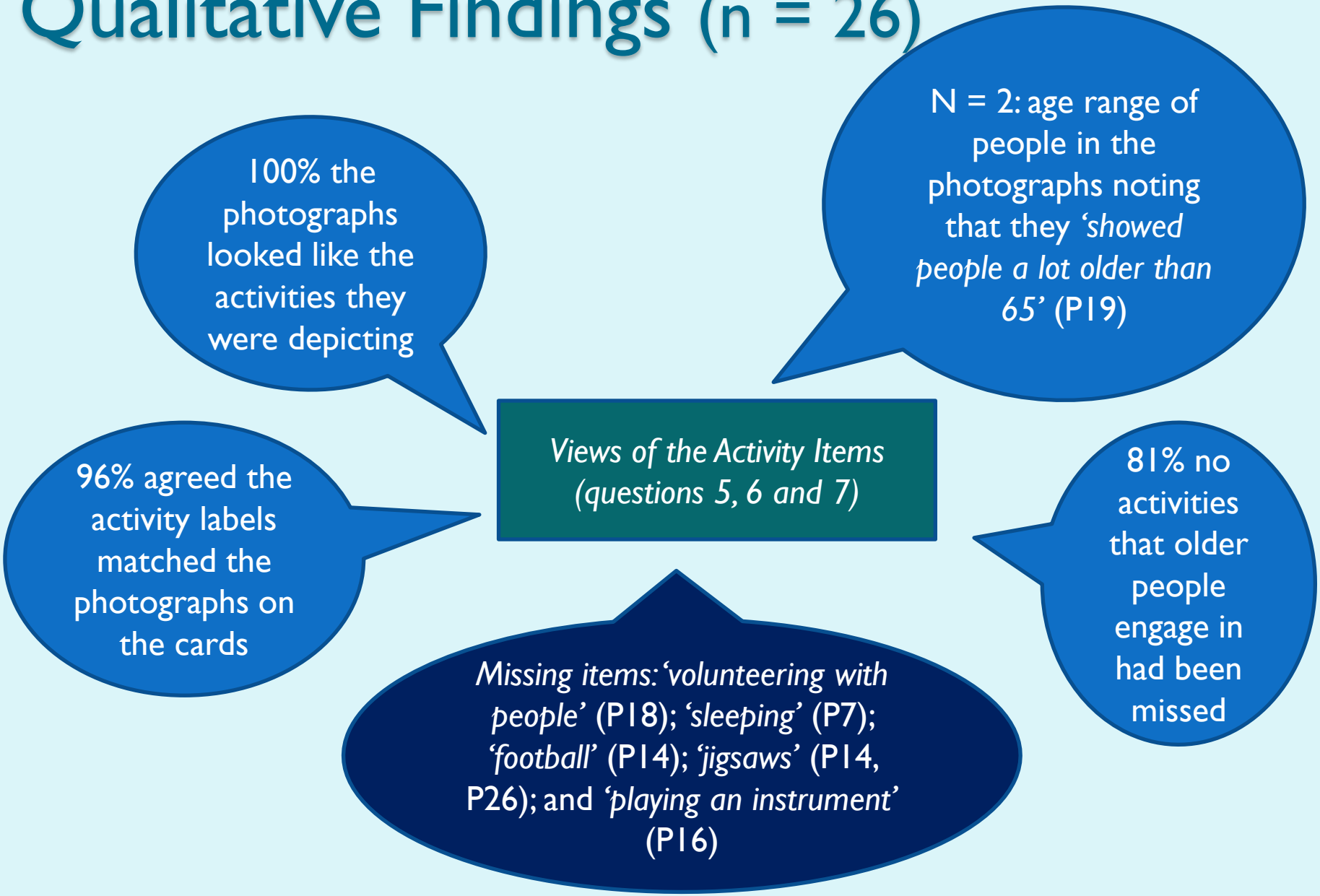
9 said sorting category labels made sense; *'there couldn't be any more alternatives'* (P25)

3 had difficulty deciding which 5 activities to choose as their most important

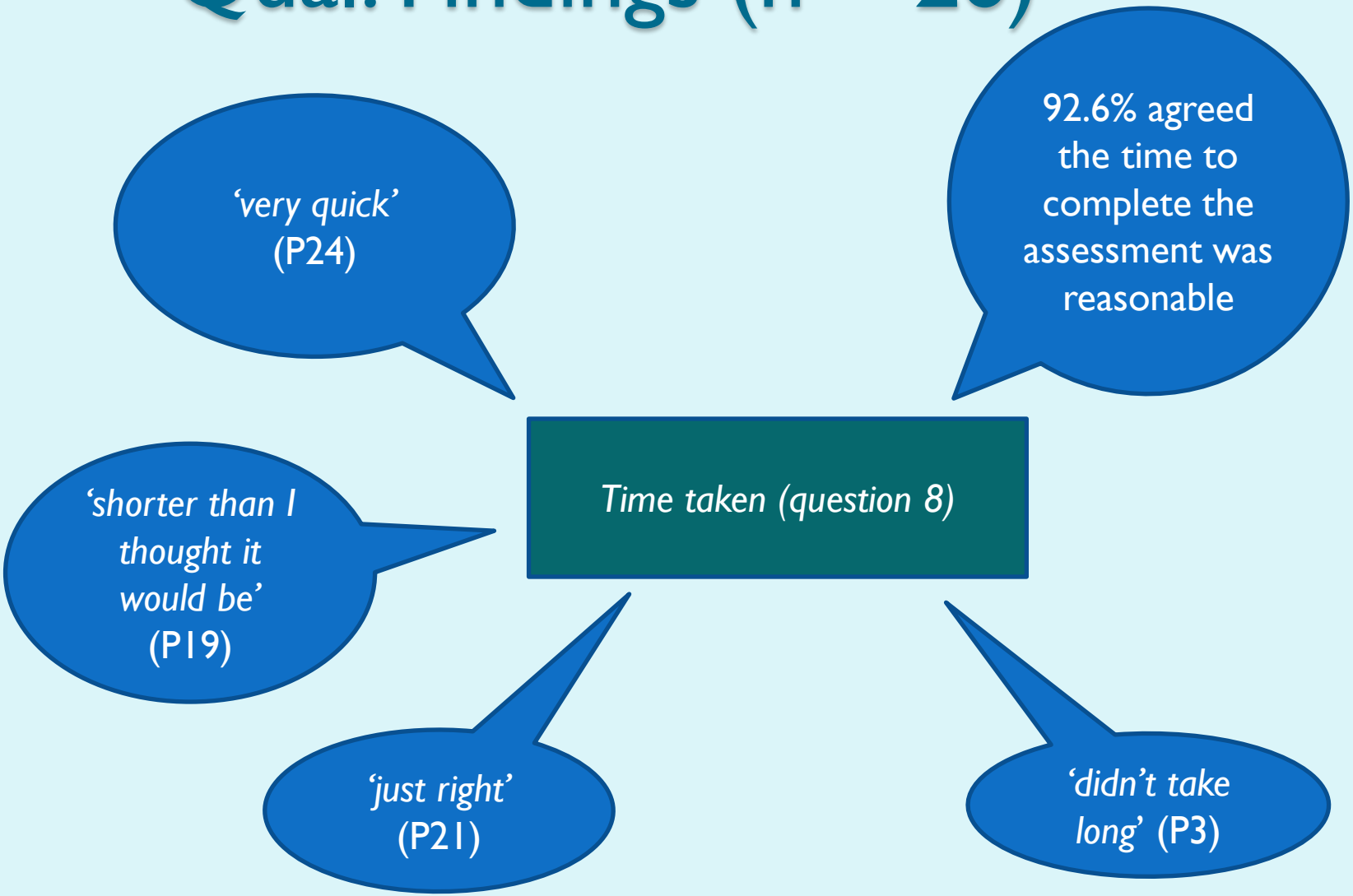
Qualitative Findings



Qualitative Findings (n = 26)



Qual. Findings (n = 26)



Qual. Findings

N = 1: pictures did not represent 65 year olds

70% could not think of any way to make the assessment better

89% did not identify anything they did not like about the assessment

Suggestions to improve the assessment (questions 9, 10 and 11)

some photographs did not present people physically doing the activities

P16 was unsure of the purpose of the assessment and so felt unable to answer question

Suggestion for further sorting categories : *'wish I could do'* (P18); *'aims for the future'* (P18); *'not applicable'* (P3); *'not often'* (P7); and *'sometimes'* (P7)

Discussion: qualitative findings

Feedback from study	Consideration	Decision
ACS-UK item 80 'Being with your spouse / partner' difficult to categorise for some participants	Identified as problematic for participants who had been widowed	Manual will suggest that therapists could remove this item if they are aware that the client has been widowed, divorced or separated
Most difficult aspect of the assessment appeared to be choosing five most important activities	ACS-NL (Jong et al., 2012) has four overview cards which show smaller size photographs of all activity items for each domain on one sheet.	Overview sheets showing all the ACS-UK IADL, LDL, HDL and SC activities have now been produced

Discussion: qualitative findings

Feedback from study	Consideration	Decision
Items that cover a number of activities, such as 'Managing financial matters', need more clarity	Consider having more than one photograph on a card or add some examples in brackets under the activity label	To review combined activities and add examples
Two participants who were under 70 years old commented that most of the people in the photographs appeared quite a bit older than 65 years.	As the assessment is for people aged 65 and over it is important that the photographs included are representative of the whole age group.	Several items have now been re-photographed to show people under 70 completing activities
Several participants were unsure of the purpose or had not correctly identified the reason for the assessment	It is important that people fully understand the purpose of an assessment	More detailed guidelines provided in the ACS-UK test manual to instruct therapists how to explain the purpose of the ACS to clients

Feedback from study	Consideration	Decision
Add an item for sleeping (n = 1)	The ACS-UK item 15 'Taking a rest' shows someone sitting on a sofa with her eyes closed. Literature review – sleeping as an occupation	Item for 'Sleeping' to be added
Add an item to represent volunteering with people (n = 1) to show an active role of volunteering such as working with children or adults	ACS-UK item 78 'Volunteer Work' can include a wider range of volunteering activities	Further written examples in brackets will be added to item 78
Add item for 'playing an instrument' (n = 1)	Playing instrument had not met the cut-off level for inclusion during content validity study	If the person mentions playing a n instrument this can be added as an 'other' activity

Discussion: qualitative findings

Feedback from study	Consideration	Decision
Add an item for doing jigsaw puzzles (n = 2)	In content validity study 'Putting together puzzles' had mean frequency above the cut-off during Round 1. But had been combined: item 32 'Doing Puzzles / Crosswords'	New item 'Doing Jigsaws' has been added as ACS-UK item in the Low Demand Leisure domain.
Football was not included (n = 1); playing or watching football?	Item 30 'Going to watch a sports event' and item 62 'Exercising'	Further written examples in brackets will be added to item 62. Do people perceive participating in team games, such as football, as 'exercise'?

Qualitative findings: Summary of data for time taken to score the ACS-UK

Sample	Range in seconds (minutes and seconds)	Mean in seconds (mins and secs)	Standard deviation (seconds)
Sample 1 (n = 16)	208-368 (3 m 28 s – 6 m 8 s)	277 (4 m 37 s)	47
Sample 2 (n = 11)	255-415 (4 m 15 s – 6 m 55 s)	310 (5 m 10 s)	50
Combined sample (N = 27)	208-415 (3 m 28 s – 6 m 55 s)	290 (4 m 50 s)	50

Table 2: Summary of data for time taken to administer the ACS-UK

(n =11 participants and 4 assessors)

Sample	Range in seconds (minutes and seconds)	Mean in seconds (mins and secs)	Standard deviation (seconds)
Sample 2	290-1020 (4 m 50 s – 17 m)	581 (9 m 41 s)	225 (3 m 45 s)

Mean time for administering and for scoring the ACS-UK was combined
The average duration was 14 minutes 31 seconds

Discussion: duration

- Despite having the most items of any ACS versions, the average time for administering and scoring the ACS-UK was approx. 14 ½ minutes
- longest scoring time < 7 minutes
- longest administration time was 17 minutes
- total assessment time approx. 24 minutes
- total ACS-UK time was 4 minutes longer than the 20 minutes reported for the ACS-HK (Chan et al., 2006) and ACS (Baum and Edwards, 2008)

Discussion: duration

- ACS-UK was less time consuming than the Israeli ACS
- Katz et al. (2003) reported I-ACS took between 30-60 minutes
- However, Katz et al. undertook a discriminant validity study with healthy adults and older adults, caregivers and people with Alzheimer's, stroke, or multiple sclerosis.
- It may be that test administration will take longer with some client groups.

Summary of ACS-UK Retained Activity Scores

Domain	Range (%)	Mean (%)	Standard deviation (%)
Global Retained Activity Score (GRAS)	51.09 - 89.47	70.10	10.32
Instrumental Activities of Daily Living (IADL) RAS	66.00 - 95.83	79.36	8.42
Low Demand Leisure (LDL) RAS	36.84 - 96.66	71.78	14.19
High Demand Leisure (HDL) RAS	12.50 – 100	57.41	20.27
Social / Cultural (SC) RAS	28.94 - 85.71	63.49	14.60

Discussion: Comparison of scores

It is interesting to examine participation levels for older people from different countries and cultures (Eriksson et al., 2011)

- The ACS-UK scores (n = 27) compared to data reported for similar samples for other ACS versions.
- For example, Katz et al. (2003) reported I-ACS retained activity scores for a sample (n = 61) of healthy older adults, according to gender.
- Baum and Edwards (2008) reported ACS scores from 57 older people (mean age 74 years)

Discussion: Comparison of scores

ACS-UK, ACS and Israeli samples: highest levels of retained activity were for instrumental activities of daily living

- IADL RAS ACS-UK mean of 79% (sd 8)
- I-ACS mean RAS of 89% (sd 9) for men and 83% (sd 15) for women
- ACS sample (mean 68%, sd 26)

Discussion – Comparison of scores

For all three samples the lowest participation levels were for high demand leisure (HDL) activities:

- ACS-UK sample had mean 57% (sd 20),
- Katz et al (2003) for older men (56% mean, sd 21)
- ACS sample (Baum and Edwards, 2008) of 54% (sd 2).

Global participation levels were also similar:

- ACS-UK GRAS mean of 70% (s.d.10)
- I-ACS GRAS means for men (M = 74, sd 11) and women (M = 68, sd 13)
- ACS sample (mean 67, sd 21)

Limitations and future research

- This study involved a small convenience sample of White British older adults.
- It would be beneficial to conduct a further study with a more ethnically diverse sample that better represents the UK older adult population.

Limitations and future research

- As a number of changes are being made to the ACS-UK in response to the results of this study, it would be useful to evaluate whether the changes lead to improved face validity with another sample.
- Katz et al (2003) examined the differences in activity participation between men and women and a secondary analysis examining Retained Activity Scores and Global Retained Activity Scores by gender of the ACS-UK scores obtained by this sample would be useful.

Conclusion

- The study showed that overall the ACS-UK has good acceptability and utility in terms of older adult's first impressions, ease of understanding instructions, activities, activity labels and carrying out the card sort.
- However, understanding of the purpose of the ACS-UK was varied and this aspect of face validity can only be considered as fair.
- In terms of clinical utility, the reasonable time required to administer and score the ACS-UK, along with the ease of administering and scoring the assessment suggests that the ACS-UK has good clinical utility.

Conclusion (continued)

- The study also identified potential additional activities for consideration and shed new light on some activities which were previously removed during initial test development.
- A sample of ACS-UK scores for community dwelling older adults was obtained for a future discriminative validity study.

Acknowledgments

- Data was collected through two dissertation projects undertaken by undergraduate occupational therapy students in the academic years 2011-12 and 2012-13.
- Grateful thanks to the 27 participants who gave up their time to participate in the data collection and the people who supported the recruitment of participants.
- The four occupational therapy undergraduate students who collected data during the 2nd study: Leanne Brain, Courtney Brody, Lauren Cardy and Lisa Manaton

Acknowledgments

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- Dr Katrina Bannigan who co-supervised the first study.
- Sarah Mallinson who provided an introduction to the first student research group on the administration of the ACS-UK
- Professor Carolyn Baum for permission to develop a UK version of the Activity Card Sort.

Questions and discussion

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Declarations of interest:

- The first author and YSJU maintains copyright of the Activity Card Sort-United Kingdom (ACS-UK). The ACS-UK manual and cards may be published for-profit in future.

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